Interspecific courtship solicitation by a female *Danaus genutia* Cramer, 1779 in the Sundarbans, West Bengal, India (Lepidoptera: Nymphalidae, Danainae)

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Abstract: The first instance of interspecific courtship solicitation is reported between a female *Danaus genutia* and a male *Danaus melanippus* on Henry's Island, Sundarbans, West Bengal, India.

Keywords: Interspecific courtship solicitation; *Danaus genutia* Cramer, 1779; *Danaus melanippus indicus* Fruhstorfer, 1899.

Zwischenartliche Paarungsaufforderung durch einen weiblichen *Danaus genutia* Cramer, 1779 in den Sundarbans, West-Bengal, Indien (Lepidoptera: Nymphalidae, Danainae)

Zusammenfassung: Zum ersten Mal wurde eine zwischenartliche Paarungsaufforderung durch ein Weibchen von *Danaus genutia* gegenüber einem Männchen von *Danaus melanippus* auf Henry's Island, Sundarbans, West-Bengal, Indien, beobachtet.

Introduction

The butterfly *Danaus melanippus* Cramer, 1777 has been recorded in India from the eastern coast, from Orissa northwards (Evans 1932), through the Sundarbans and Bangladesh to the Malay Peninsula, Indonesia, the Philippines, Taiwan, Tanimbar and the Sula Archipelago (Ackery & Vane-Wright 1984). *D. melanippus nesippus* C. Felder, 1862 has been reported from Great Nicobar Island, India (Veenakumari et al. 2008). It is not as common as the much more widespread *Danaus genutia* Cramer, 1779 or *D. chrysippus* Linnaeus, 1758.

Usually, individuals of *D. melanippus* are found along forest margins, pathways and grassy areas near the edges of forests (Ackery & Vane-Wright 1984). In such localities on Henry's Island in the Sundarbans (South Twenty-Four Paraganas district, W. Bengal, India) (Fig. 1), 5 individuals of *D. melanippus indicus* Fruhstorfer, 1899 were observed within 3 hours (10:00 to 13:00 h) on the first day of a 2 day visit on 1./2. xii. 2010. All the individuals were seen singly at different locations during a 5 km walk through the forest bordering the sea.

In addition, on two occasions, one individual of *Danaus genutia* was seen at each of two different locations.

On the next day, there were two unconfirmed sightings of *D. melanippus* from the nearby Lothian Island.

Observations

D. melanippus was first sighted on Henry's Island in an open patch of mangrove forest with most of the shrubs around 1 m high. One individual of this species was flying around a thorny bush roughly 3 m high and 3 m in diameter growing beside the unpaved road at 21°34'20.38"N, 88°17'14.24"E. Closer observation revealed that the individual was in fact being chased by a *D. genutia* (Fig. 2). The bush was not flowering, nor was it a source of alkaloids, for neither individual stopped to feed. Instead, the *D. genutia* pursued the *D. melanippus* around the bush. During the course of 5 min. when this behaviour was observed, the two individuals settled 5 times at different places on the same bush. The *D. melanippus* would settle first and the *D. genutia* immediately settle within 30 cm of the *D. melanippus*, until the *D. melanippus* took flight again, whereupon the *D. genutia* would take up the chase.

Several photographs of this chase were taken. Closer examination of the photographs revealed that the *D. melanippus* was a male and the *D. genutia* was a female (Fig. 2).

Fig. 1: Henry's Island, Sundarbans, India. **Fig. 2:** A male *Danaus melanippus* is pursued by a female *Danaus genutia* around a bush. — Photos: O. Thorat.

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Discussion

Generally, it has been noted that sexual roles in butterflies are male active and competitive and female passive and coy (Rutowski 1984). Courtship in the danaines is known to be initiated by males after obtaining pyrrolizidine alkaloids from certain plants that trigger their sex hormones and enable the beginning of courtship. Therefore, courtship in this family is usually initiated by males.

Courtship solicitation by females has been recorded in a few instances but is not the regular routine in any species. This behaviour usually occurs when the females are virgin (Wiklund 1982) or when their supply of secretions from previous matings is depleted (Rutowski 1980, 1984). However, a case of inter-specific courtship solicitation by a female does not appear to be on record.

In the present case, it appears that the interaction witnessed between the *D. genutia* female and the *D. melanippus* male was a preliminary courtship, for there was no aggressive territorial behaviour by either participant, no feeding by either partner nor is it possible to interpret the fact that the two butterflies flew around the bush for 5 minutes and settled together in close proximity 5 times in any other way.

The fact that the male did not fly away also suggests that he was partial to the advances by the female. Unfortunately, the significance of the observations did not emerge until much later, and the observations were terminated while the pair was still flying around the bush, so it is not known if the courtship actually ended in an interspecific mating.

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